

Appl. No.: 10/692,825
Amdt. dated November 16, 2004
Reply to Office Action of September 28, 2004

REMARKS/ARGUMENTS

In the Office Action dated September 28, 2004, Claims 1-31 are pending. Independent Claims 1 and 12 and dependent Claims 2, 5-9, 11, 13-15, and 17 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,308,794 to Tu. Independent Claim 19 and dependent Claims 25 and 28 are rejected under 35 U.S.C. § 102(b) as being anticipated over U.S. Patent No. 5,031,822 to Humpston, et al. In addition, independent Claims 12 and 19 and dependent Claims 13-17, 20, 22, 23, 25, 26, and 29 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application Publication No. 2002/0089828 to Suzuki, et al. The remaining Claims 3, 4, 10, 18, 21, 24, 27, 30, and 31 are indicated to be allowable if rewritten in independent form including the limitations of the base claims.

Applicant has amended Claims 12 and 19 and added new dependent Claim 32. Applicant respectfully submits that each of the pending claims is allowable over the cited references.

Independent Claim 1 and dependent Claims 2, 5-9, and 11

Claims 1, 2, 5-9, and 11 are rejected as being anticipated by Tu.

Claim 1 recites a weld joint that includes at least one structural member defining first and second faying surfaces defining an interface therebetween, with "a weld joint extending through the interface and connecting the first and second faying surfaces" and "a sealant disposed in the interface and being diffusion bonded to the faying surfaces."

Tu, in contrast, does not disclose each of the features set forth in Claim 1. The Office Action refers to Tu at column 2, lines 39-42, which cites U.S. Patent No. 3,222,630 to Gorman, describing a semiconductor body with "a contact material comprising an alloy containing 52-56% by weight germanium with the remainder aluminum. A gold lead wire may be pressed against the contact material causing the gold lead wire to alloy with the germanium in the contact material." Tu at col. 2, lines 39-44. However, neither Tu nor Gorman describes the combination of a weld joint and a diffusion bonded sealant.

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For example, the foregoing cited passage indicates only that a connection is made between a contact material and a gold lead wire. Neither reference teaches or suggests that the connection can be a weld joint as claimed. Moreover, even if the connection is a weld joint, no further teaching is provided in these references for a diffusion bond in combination with a weld joint as claimed.

Further, the weld joint of Claim 1 extends "through the interface" to connect "the first and second faying surfaces" and the sealant is "disposed in the interface" and is "diffusion bonded to the faying surfaces." Neither Tu nor Gorman describes a joint of any kind that extends through an interface in which a sealant is disposed, or such a connection wherein the sealant is diffusion bonded to seal the weld joint.

In fact, both Tu and Gorman are directed to a distinctly different structure and purpose. In this regard, an object of Gorman "is to provide novel aluminum-germanium alloys to which lead wires, especially gold lead wires, may be attached without the formation of undesirable inter-metallic compounds." Col. 1, lines 50-56. Tu is directed to "integrated circuit chip metallization, and more particularly, to adjusting the thermal expansion of the interconnect metal to reduce the thermal stress of the interconnect metal with an insulation layer or opening in the insulation layer." Col. 1, lines 9 to 14. Neither discloses a weld joint with a sealant as set forth in Claim 1.

Accordingly, Applicant respectfully submits that Claim 1 is allowable over Tu, as are each of Claims 2, 5-9, and 11, which are dependent on Claim 1.

New dependent Claim 32 is dependent on Claim 1 and also allowable over Tu for the foregoing reasons. Further, Claim 32 recites that "each structural member is formed of metal such that the first and second faying surfaces are metal." Applicant notes that Tu does not describe a weld joint with sealant between metal structural members. Instead, Tu describes a connection between a semiconductor region 22 and a stud 10. Tu does not teach or suggest that the semiconductor region 22 is formed of metal. Therefore, Claim 32 is also allowable for this additional reason.

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Independent Claim 12 and dependent Claims 13-17

Claims 12-15 and 17 are rejected as being anticipated by Tu. Claims 12-17 are rejected as being anticipated by Suzuki, et al.

Claim 12 as amended incorporates the features of Claim 18, which was previously indicated to be allowable. Accordingly, Applicant submits that Claims 12, as well as dependent Claims 13-17, are now allowable. Claim 18 has been cancelled.

Independent Claim 19 and dependent Claims 20, 22, 23, 25, 26, 28, and 29

Claims 19, 25, and 28 are rejected as being anticipated by Humpston, et al. In addition, Claims 19, 20, 22, 23, 25, 26, and 29 are rejected as being anticipated by Suzuki, et al.

Claim 19 has been amended to correct a grammatical informality. The amendment is wholly unrelated to the substantive patentability of the claim. Claim 19 as amended recites a method of sealing a weld joint including "disposing a sealant on at least one of first and second faying surfaces of at least one structural member," and "welding the at least one structural member to form a weld joint extending through the interface [between the faying surfaces] and thereby heating the sealant such that the sealant bonds with the at least one structural member proximate to the weld joint."

Humpston, et al. does not teach or suggest the combination of welding and bonding that is set forth in Claim 1. Instead, Humpston, et al. is directed to "a method of brazing a component of silicon to a component of molybdenum and/or tungsten using an aluminum-based braze." Col. 2, lines 3-6. In this regard, Humpston, et al. discloses various brazing alloys that can be used for a low temperature brazing operation. See col. 3, lines 4-23. However, Humpston, et al. does not describe forming a weld joint. That is, brazing is not welding. This distinction is set forth in the present application, which states that "the structural members 20, 22 can also be joined without welding, for example, by solder joints, brazing joints, rivets, bolts, clips, other fasteners, crimps, and the like." Page 5, lines 22-24. (Emphasis added.) Moreover, Humpston, et al. does not teach or suggest welding "and thereby heating the sealant such that the sealant bonds with

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the at least one structural member proximate to the weld joint," i.e., no such combination of a weld joint and bond proximate thereto is disclosed.

Regarding Suzuki, et al., the Office Action states that "In the sealing method the sealant (solder) is placed between the members and heated such that it fills the space between them." Applicant respectfully submits that the described operation is not welding, as set forth in Claim 19. That is, soldering is not welding. This distinction is also set forth in the present application. As noted above, the application states that "the structural members 20, 22 can also be joined without welding, for example, by solder joints, braze joints, rivets, bolts, clips, other fasteners, crimps, and the like." Page 5, lines 22-24. (Emphasis added.) Further, the solder operation described by Suzuki, et al., much like the brazing described by Humpston, et al., is not welding "to form a weld joint extending through the interface and thereby heating the sealant such that the sealant bonds with the at least one structural member proximate the weld joint."

Accordingly, Applicant respectfully submits that Claim 19 is allowable over Humpston, et al. and Suzuki, et al., as are each of the dependent Claims 20, 22, 23, 25, 26, 28 and 29.

* * * *

CONCLUSIONS

In view of the remarks presented above, Applicant submits that the Claims 1-17 and 19-32 are allowable and the present application is in condition for allowance. As such, the issuance of a Notice of Allowance is therefore respectfully requested. In order to expedite the examination of the present application, the Examiner is encouraged to contact Applicant's undersigned attorney in order to resolve any remaining issues.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR

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§ 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,

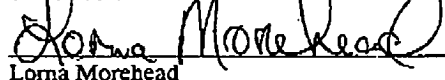


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CERTIFICATION OF FACSIMILE TRANSMISSION

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Lorna Morehead

November 16, 2004
Date

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